

What is claimed is:

1. A method of controlling a vehicle with a trailer comprising:

determining a presence of the trailer;
determining a vehicle velocity;
determining a steering wheel angle;
determining a rear axle side slip angle of the vehicle; and

applying brake-steer to the vehicle when the rear axle slip angle is above a predetermined rear axle slip angle, the vehicle velocity is above a velocity threshold, and the steering wheel angle is about zero.

2. A method as recited in claim 1 wherein determining the presence of a trailer comprises determining the presence of a trailer with a hitch sensor.

3. A method as recited in claim 1 wherein determining the presence of a trailer comprises determining the presence of a trailer with a reverse aid sensor.

4. A method as recited in claim 1 wherein determining the presence of a trailer comprises determining the presence of a trailer with an ultrasonic sensor.

5. A method as recited in claim 1 wherein determining the presence of a trailer comprises determining the presence of a trailer with a camera.

6. A method as recited in claim 1 wherein determining the presence of a trailer comprises detecting a locating plate behind the vehicle.

7. A method as recited in claim 6 wherein the locating plate comprises a locating hole positioned along the trailer tongue.

8. A method as recited in claim 1 wherein applying brake-steer comprises applying at least one brake at a first wheel to reduce a vehicle turning radius.

9. A control system for an automotive vehicle and a trailer comprising:

means to determine the presence of the trailer;
a vehicle velocity sensor generating a vehicle velocity signal;

a steering wheel angle sensor generating a steering wheel angle signal; and

a controller coupled to the means, the velocity sensor and the steering angle sensor, said controller determining a rear axle side slip angle of the vehicle, and when the rear axle slip is above a predetermined rear axle slip, vehicle velocity is above a velocity threshold and the steering wheel angle is about zero, said controller programmed to apply brake-steer to the vehicle.

10. A system as recited in claim 9 wherein said means to determine the presence of a trailer comprises a hitch sensor.

11. A system as recited in claim 9 wherein said means to determine the presence of a trailer comprises a reverse aid sensor.

12. A system as recited in claim 9 wherein said means to determine the presence of a trailer comprises an ultrasonic sensor.

13. A system as recited in claim 9 wherein said means to determine the presence of a trailer comprises a camera.

14. A system as recited in claim 9 wherein said controller is programmed to brake-steer by applying a first brake and a second brake to reduce the turning radius of the vehicle.

15. A system as recited in claim 9 wherein said controller is programmed to brake-steer by applying at least one brake at a first wheel to reduce a vehicle turning radius.

16. A system as recited in claim 9 wherein said controller is programmed to brake-steer by applying an increased drive torque to a second wheel relative to the first wheel.

17. A control system as recited in claim 9 further comprising a steering wheel angle sensor generating a steering wheel angle signal, said controller programmed to apply brake-steer in response to a reverse direction signal and the steering wheel angle signal.

18. A control system as recited in claim 9 further comprising a yaw rate sensor generating a yaw rate signal, said controller programmed to apply brake-steer in response to a reverse direction signal and yaw rate signal.

19. A control system as recited in claim 9 further comprising a steering wheel torque sensor generating a steering torque signal, said controller programmed to apply brake-steer in response to a reverse direction signal and steering torque signal.

20. A control system as recited in claim 9 further comprising a steering wheel angle sensor generating a steering wheel angle signal and a vehicle velocity sensor generating a vehicle velocity signal, said controller programmed to apply brake-steer in response to the reverse direction signal and steering wheel angle and vehicle velocity signal.

21. A method of controlling a vehicle with a trailer comprising:

- determining a presence of the trailer;
- determining a vehicle velocity;
- determining a hand wheel angle position signal corresponding to an angle of the hand wheel angle position;
- determining a sensor yaw rate from a yaw rate sensor;
- calculating a yaw rate based upon the hand wheel signal;

determining a rear axle side slip angle; and
applying brake-steer to the vehicle when the rear axle slip angle is above a predetermined rear axle slip angle, the vehicle velocity is above a velocity threshold, and the sensor yaw rate is diverging from the hand wheel yaw rate.

22. A method as recited in claim 21 wherein determining the presence of a trailer comprises determining the presence of a trailer with a hitch sensor.

23. A method as recited in claim 21 wherein determining the presence of a trailer comprises determining the presence of a trailer with a reverse aid sensor.

24. A method as recited in claim 21 wherein determining the presence of a trailer comprises determining the presence of a trailer with an ultrasonic sensor.

25. A method as recited in claim 21 wherein determining the presence of a trailer comprises determining the presence of a trailer with a camera.

26. A method as recited in claim 21 wherein applying brake-steer comprises applying at least one brake at a first wheel to reduce a vehicle turning radius.

27. A system as recited in claim 21 wherein the position sensor comprises a reverse aid sensor.

28. A system as recited in claim 21 wherein the reverse aid sensor comprises an ultrasonic sensor.

29. A system as recited in claim 21 wherein the position sensor comprises a camera.

30. A system as recited in claim 21 further comprising input device said controller.